

REMARKS

The application has been reviewed in light of the Office Action dated September 11, 2000. Claims 1-8 have been rejected. Claim 1 has been amended. Claims 1-8 are pending in the application.

Claims 1-8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Peral et al (US Patent Publication 2002/0076132 in view of Onaka et al (US Patent No. 5,696,859).

The applicant traverse this rejection as the base claim has been amended to recite features not disclosed in Peral and Onaka. In particular, the amended claim 1, inter alia, recites “ an optical tunable filter configured to filter the optical signal using a central wavelength corresponding to ‘1’ level of the optical signals, perform a vestigial side band modulation of the optical signal by degenerating a determined band of the optical signal using the central wavelength, and reduce the power of ‘0’ level of the optical signals.

Support the above amendment can be found at least in page 8, lines 11-17, which states that “when the optical tunable filter sets the central wavelength near the peak portion corresponding to the ‘1’ level of the optical signals, the power of the ‘1’ level of the optical signals is not reduced but the power of the ‘0’ level thereof is reduced.” Now where in Peral, or in combination with Onaka, teaches this feature.

The Office Action states that Peral fails to disclose the optical filter to be an optical tunable filter. However, Onaka discloses an optical tunable filter for maintaining the desired filtering characteristics. First, references make no suggestion of this modification, and Peral teaches suppressing one side of the side bands of the modulated optical carrier to reduce the effect of group

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velocity dispersion in the optical fiber (paragraph 21-23). The comparator 50 in Peral compares the filtered laser output signal 40(a) and the reflected signal 30(b) to generate a feedback signal, which is used to set the output wavelength of the laser 20 at the desired value. Onaka teaches controlling the oscillation wavelength of the laser diode using the band-pass filter, serving as wavelength reference, so that the oscillation wavelength of the laser diode matches a wavelength which provides a peak of the characteristics of the band-pass filter (Col. 7, lines 33-37). Neither references teaches suppressing only the power of the '0' level, as recited in the amended base claim 1.

“The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) MPEP 2143.01.

Moreover, the use of the band-pass filter in the present invention is not merely to separate from other channels or to perform the output control of the optical signals. For controlling the optical output of the '0' level and '1' level in a single channel, the tunable filter in the present invention sets the central wavelength near the peak portion corresponding to the '1' level of the optical signals, and the power of the '0' level of the optical signals is reduced at the side band, by putting a predetermined distance between a central wavelength of an optical source and a central wavelength of the optical tunable filter.

Further, when a directly modulated distributed feedback laser diode is used in an optical transmitter as in the prior art, a carrier density in the distributed feedback laser diode is changed according to the input electrical signals which affects a reflective index. As a result, a frequency modulation occurs which in turns causes the bandwidth of the output signals to become larger. In

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the present invention, the wavelength band of the laser diode is stabilized or performed for output control using the band-pass filter, so that a high output is maintained in the directly modulated process, and a high level of power is maintained at the side band.

Accordingly, for at least this reason, Applicants submit that all pending claims are allowable over Peral and Onaka. The other claims in this application are each dependent from the independent claim discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.

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If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to kindly telephone the undersigned. If there are any fees due and owing, please charge Deposit Account No. 502-470.

Respectfully submitted,

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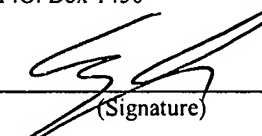
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450 Alexandria, Va 22313-1450 on January 25, 2005.

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